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Driving forces in the Greenlandic urbanization

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Abstract

Generally urbanization is recognised as a natural development where the population is moving into the larger towns driven by e.g. better job opportunities, larger product and service supply and better education and health services, and it is often argued that this is also the driving forces for accelerating changes in the Greenlandic settlement pattern.

Recent research problematize to what extent this logic is so simple?

Also in Greenland, with its 56.000 inhabitants spread over 17 so-called towns and 58 settlements, there is a clear correlation between settlement pattern and job opportunities. But to a high extent the distribution of jobs and trades are a consequence of political and/or administrative decisions or lack of it. Based on a relatively mechanical reproduction of Danish and European economic understanding a centralization of trade and public service has been implemented to reap the rewards of expected large-scale benefits. This has resulted in limited economic and productivity effect. In this regard the consequences of the extreme Greenlandic island economy and micro state characteristics, where more than half of the public revenues is financed by Denmark and EU, is underestimated. This centralization has left geographical regions with limited livelihood and at the same time a lack of utilization of local resources and trade opportunities. Additionally the Greenlandic so called larger cities are ended in an unsustainable economical situation mainly depending on public financed jobs or social support and with limited export oriented value creation.

It will be discussed how the previous and present urbanization interact with a sustainable development and what is the core prerequisites for sustainable towns and settlements.

1. Introduction

Urbanization, and thus the concentration of people in a limited area, along with migration away from rural and outlying districts, is an international trend. The driving forces in the urbanization process are many and varied, but there are clear commonalities. Most often, populations leave areas where they feel that living conditions will deteriorate, and migrate toward larger settlements where they expect that the living conditions will be better. This main driver of urbanization is true whether in the case of poor third world countries or in wealthier western countries. In developing nations, people are often fleeing

rural areas due to drought, falling world prices for their crops, foreign companies purchasing or otherwise acquiring their land, and wars and conflicts. While in the richer western countries, this migration is instead due to the old rural areas characterized as outer or peripheral areas, the ever-increasing mechanization and centralization of food production, and the loss of manufacturing jobs that were originally established in low-wage areas, which have now been moved to other countries with lower-wages. When employment opportunities in the agricultural sector disappear and industrial workplaces are outsourced, it inevitably initiates a negative

spiral that gradually undermines local economy and thus the service functions and jobs attached to them, such as schools, shops and services, and local crafts.

Urbanization trends in the wealthier Western countries are often supported by a social desire to centralize public or semi-public service functions, such as replacing small local hospitals with larger district or regional hospitals to collect the municipal administrations in fewer but larger units. This then causes a significant concentration of business and thus jobs in and around the urban centers. There can be found a positive correlation between emigration rates to the outer areas or 'edge habitats' and the geographical distance to the nearest urban center, given that these 'edge habitats' that are close enough to an urban center that daily commuting makes sense. For those areas where commuting to these economic concentrations becomes difficult, a demographic imbalance is the norm, in which young people leave to seek work, or to get an education and then fail to return because job opportunities are limited or not perceived as attractive. This makes the remaining population increasingly older, and a disproportionate share of job opportunities for people of working age will relate to caring for the elderly.

Greenland historically has had a very close bond with Denmark, as it was for a time was a Danish county, and today is part of the commonwealth with autonomous status. Therefore, there has been a conscious desire on a variety of social fields to compare Greenland with the Nordic and Scandinavian countries. This trend is reflected in a number of reports and investigations that are directly or indirectly engaged with the Greenland urbanization trend (Naalakkersuisut, 2011; Skatte- og Velfærdskommissionen, 2011; NORDREGIO, 2010; NORDREGIO, 2010; NORDREGIO, 2011; Transportkommissionen, 2011). This means that the analysis and understanding of Greenland urbanization trends is based primarily on a Danish frame of reference, possibly without proper regard to Greenlandic characteristics. Thus, the key question of the paper is what other factors that influenced recent human settlement development in Greenland and thus what is applicable to Denmark and the other Nordic countries, and what has their role been. The paper also explores potentially overlooked selected conditions that are important for the development of the Greenlandic settlement pattern.

2. A micro-state of many island economies

One of the essential characteristics of Greenland, with its 56,000 inhabitants, is that in terms of demographics and economics it is a micro-state, even though in a geographic sense, Greenland is the world's largest. At the same time, the Greenland micro-economy, with its 17 so-called cities and 58 settlements, is in practice divided into a number of island economies without the possibility of daily commuting between the settlements due to a lack of transportation infrastructure. In

A characteristic for micro-states is that their domestic market is limited, and their import very high. Therefore, to maintain the trade balance, exports must also be very large (Nielsen, 2000). Even though Greenland has a proportionately big export market, Greenland has only succeeded in achieving a trade surplus during a very short period since the introduction of home rule in 1979. Instead, the vast majority of this time there has been a significant deficit, as shown in Figure 1.

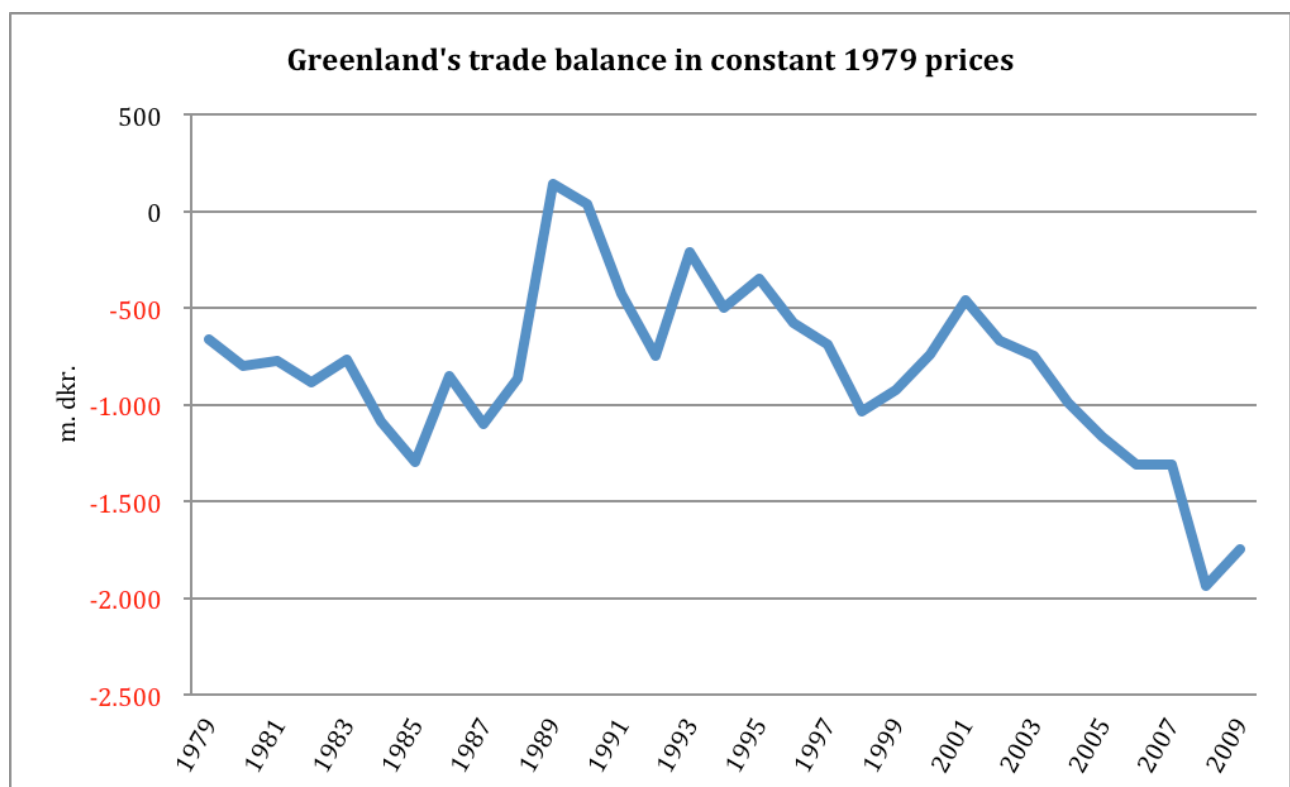


Figure 1: Greenland's trade at constant 1979 prices from 1979 to 2009. As can be seen, Greenland has had a significant trade deficit throughout the home rule period, except in 1989 and 1990 when there was a very modest profit. (Based on Statistics Greenland)

addition, there is limited internal trade between these settlements, so only approximately 15% of all trade in goods takes place within Greenland. The vast majority is direct sea transport between the port of Aalborg in Denmark and each individual dwelling in Greenland, or via a Greenlandic port where goods are unloaded onto smaller ships. (Royal Arctic Line 2007, 2008, 2009, 2010)

Another characteristic of micro-states is that they usually have a mono-economy, a dependence on one or a few export products. For Greenland, it has throughout the period of modernization of the post-World War II era been fish and shrimps. Figure 2 shows how the impact of a mono-economy monetarily.



Figure 2: The key export product groups from 1982 to 2010 at constant 1979 prices. As noted, the only significant exports for the period, in addition to seafood, are lead and zinc ore from the mine in Maarmorilik, which closed down in 1990.

Throughout this period of modernization, targeted attempts were made to diversify the economic base to include more export-oriented revenue streams in order to ensure a sustainable economy. Thus, one of the economic conditions for the Danish plans for the modernization of Greenland, the G50 and G60 plans, has been significant investment in mining and quarrying (Grønlandskommissionen, 1950; Boserup, 1963; Grønlandsudvalget, 1964). Since then, there has been a focus on, among other things, building a tourism industry, exports of other natural resources such as spring water, and the establishment of an aluminum smelter, without any of this significantly reducing the mono-economic dependence on exports of fish and seafood. For some periods, there has been relatively limited mineral extraction for export, but the only economic effect of this has largely been limited to labor wages and income tax, and since the interwar era, export of cryolite from Ivittuut, the socio-economic impact of natural resource extraction has been modest for Greenland.

At the same time, micro-states often face the challenge of their population base being so small that it is difficult to ensure the

necessary breadth of skills and the volume needed to sustain a modern society within their own ranks. This is also evident in Greenland, with a high dependence on external labor.

Another characteristic of Greenland is that each settlement functions as an island in relation to all essential infrastructure. Infrastructure plays a big role in the economic development of settlements. There are few to no roads between the Greenlandic cities and settlements, and transport infrastructure is reduced to expensive aircraft or helicopter flights. The extent of this is so limited that it is not even possible to commute on a daily basis between major settlements and for the smaller and smallest settlements the commute is on a weekly or bi-weekly basis. At the same time, the regularity of transportation is limited by climatic conditions, which causes many cancellations and delays. In addition to aircraft and helicopter flights, modest passenger ships serve some settlements, but these do not permit daily commuting and have large seasonal fluctuations. Further, these ships are often limited by ice and weather conditions.

The same applies to infrastructure areas like power, which are generally run as 'island operations,' targeting only a single settlement. This is a costly supply structure that requires local backup infrastructure in case of failure and which inevitably leads to irregularity, as there cannot be reliance on outside supply. Another area is telecommunications, which on most of the west coast is covered by a continuous relay chain system with transmitter and receiver stations on selected mountain peaks and centers within the individual settlements, while the other districts rely on satellite connections. Both solutions are costly and have limited capacity along with inevitable breakdowns.

These issues of island operations are an inevitable consequence of the fact that Greenland is on the one hand, a micro-state with a very small population, while on the other hand an extremely large country that is at the mercy of geographical and climatic conditions. Therefore, Greenland is markedly different from the other Nordic countries. Certainly, there are areas of island operations in Norway, Sweden, and to a lesser extent Denmark, but these are exceptions. In the Nordic region, the binding together of even the most isolated settlements with road and ferry services, electricity supply systems and telecommunications transmission via cable has been surprisingly successful, which, for better or worse, has had impact on settlement patterns and thus urbanization.

At the same time, these issues with island operations are central to understanding the society's economic dynamic nature and the economic coupling to patterns of settlement. In the analysis of the Greenlandic economy, there is a marked tendency to base the analyses on a Danish or Nordic frame of reference. A market economy rationale assumes a number of economic laws, which are projected onto Greenland and the isolated island economies of which do not have a volume that enables real market competition and independent technological development. Departing from general market logic, a larger market enables a wider and larger supply and thus more competition and lower prices. This logic

leads to fewer but larger settlements along with lower prices, that is, if the individual market has a volume that enables real competition. But there are reasons for questioning whether a less decentralized settlement pattern or even a collection of people at select settlements will significantly change the economic challenges of island operations. The settlements will still be too small to allow them to compete on the free market so the need for imports could rise significantly because the possibility of sustaining an economy on subsistence hunting will be reduced. The change in settlement patterns will not in itself increase exports, and thus the trade deficit is increased. (Hendriksen, 2013)

3. A subsidized national economy

The almost permanent deficit in the Greenland trade balance means that the Greenlandic economy depends to an extraordinary degree on remittances, and thus subsidies, from Denmark. The Danish government, and to very modest degree the EU, finance half of the government-related costs of operating Greenland when the direct Danish expenditure on fisheries, ice reconnaissance, the judicial system, etc. are included. Figure 3 illustrates that Danish and EU expenditure is more than income and capital gains taxes.

There is nothing unusual in the fact that a country substantial internal financial transfers or subsidies are provided to select areas, where the typical beneficiaries often are outlying districts, or urban ghettos. However, the unusual aspect in the case of Greenland is partly the sheer scale of the matter and partly that Greenland has an autonomous status. The fact that a very large part of the Danish direct and indirect subsidization of Greenland is then returned to Denmark, since the vast majority of exports of goods and services takes place here, is not relevant in this context, because the focus is on the understanding of the Greenlandic urbanization trends.

Historically, it has been a deliberate policy objective from first the Danish Greenland Administration and there after the

Distribution of public financing 2012

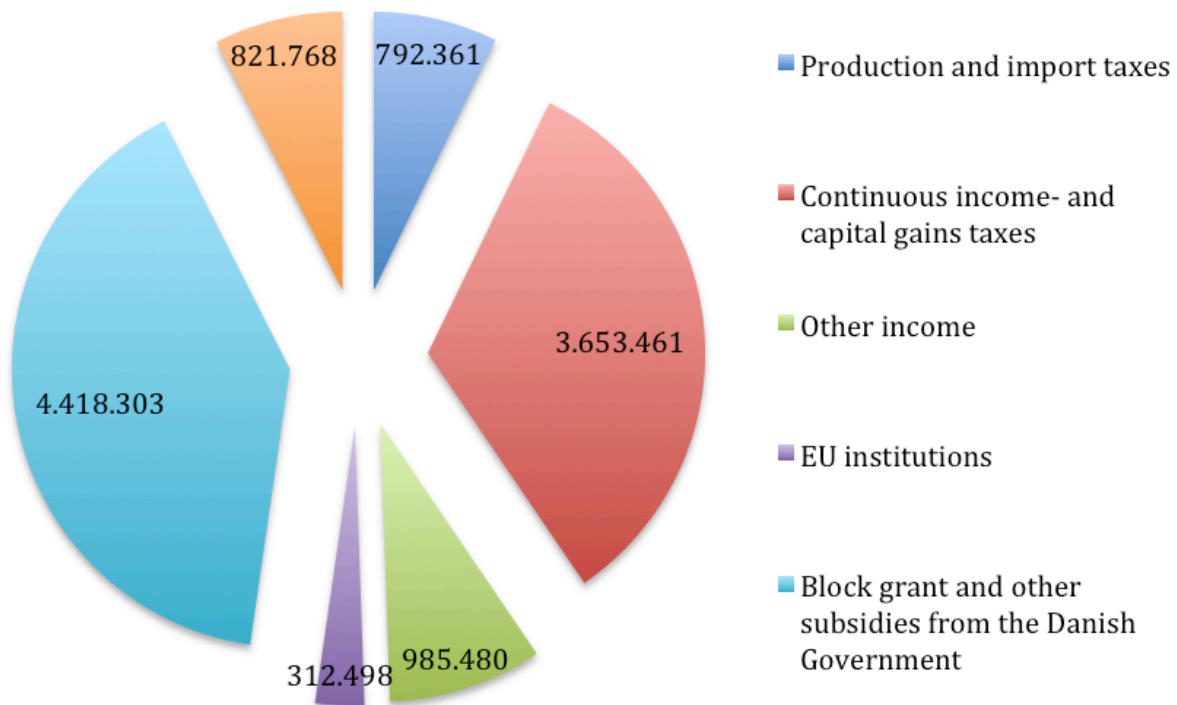


Figure 3: Distribution of the main sources of funding for the public economy of Greenland, which includes self-government, municipal and state government spending for 2012. As shown, Denmark, and to a lesser extent the EU, finances half of public spending. (Source Statistics Greenland)

Greenland Home Rule and the Greenland Self Rule to release the Greenlandic economy from dependence on Danish subsidies, without those efforts significantly changing the relationship of dependency.

4. The decoupling of settlement and industrial basis

Historically, the Greenlandic settlements and, more recently, cities and villages, were located solely on the basis of the possibility to exploit the local resource base - most often living marine resources. Therefore, the natural and man-made fluctuations in the resource base has resulted in a very high mobility, where people move based on resource potential, which has led to the depopulation of settlements, villages and some cities, while others have emerged.

With post-war modernization, the evolution of settlement patterns assumed a more systematic form. The Danish Greenland Administration sought to encourage people to move to the major cities on the west coast stretching from Nanortalik to Ilulissat, so that they could engage in fishing for mainly cod either as fishermen or workers in the fishing industry. The targeted populations were partly from the smaller settlements and partly from the cities of the outside districts, where the main occupation was hunting. In some cases it was even administratively decided to dismantle settlements and move people to the nearest town. In 1972 the Danish government's policy of centralization culminated in the closure of the coal mining town of Kutdligssat (Qullissat), which only a few years prior had been Greenland's third largest city. The Danish centralization policy sparked protests in Greenland, which were largely key to the establishment of the home rule in 1979.

In the first decade of the home rule, measures to stimulate the industrial development of the individual settlements through policies and infrastructure development such as establishing a system of purchase and storage plants, while in a number of settlements service houses, meeting rooms, coin laundries, and shower facilities, were built, and in many settlements stores which also served as post office, fuel sales, pay phone were established for the first time. The focus on a decentralized settlement pattern was based on the desire to exploit local resources locally combined with a more ideologically based intention to take care of the 'original Greenlandic culture.' But proportionately, most investments still went to the larger cities (Bro, 1993; Grønlands Statistik, 1996 til 2004).

To develop and administer the Home Rule, a central government in Nuuk was built around officials from Denmark, recognizing that there was not sufficiently skilled staff in Greenland. Naturally, the Danish officials had a Danish frame of reference, and many of them were inspired by 1968 anti-authoritarian youth rebellion and therefore supported decentralization and development on the premises of the people (Lauritzen, 1989; Lauritzen, 1997). However, due to overuse of funds and inadequate financial management, in 1987 the treasury had a deficit of nearly half a billion Danish kroner and from 1990, the cod disappeared from the seas around Greenland, so most seafood purchase and storage plants in both cities and settlements went unused (Danielsen, 1998). The combination of deficits in public finances and a sharp decline in export earnings brought Greenland into a recession which required public spending cuts. Slowly, there was a transformation of economic policy away from a balanced geographical development, and thus from the focus on small decentralized units back to the known market economic tools that involved rationalization, economies of scale, and cost optimization. The Central Administration continued to grow, and a good part of the leading Danish officials were gradually replaced with other Danish officials with a more business-economic frame of reference,

a development that coincided with the growth of neoliberalism in Western countries. Due to the Danish frame of reference the central administration came to reflect the Danish administration in its composition and structure, albeit in a smaller version, and the municipal administrations also became small copies of the Danish. (Hendriksen 2013)

In an attempt to compensate for the cod fisheries, which in reality collapsed for a long period, fishing was increasingly focused on shrimp, while halibut fishery was also gradually upgraded. Additionally, to optimize the export incomes from fishing, there has been a considerable centralization of mainly shrimp fishery with a marked decrease in the number of participating ships, while the number of trading posts fell from 16 districts in 1994 to four in 2012. There is no unequivocal relationship between the distance from the fishing grounds and the location of existing purchase and storage plants. The choice of location has rather been based on a desire to provide local jobs to the largest cities. The processing degree of shrimp has been volatile, but over the past 25 years, around 75% of shrimp has been exported as whole frozen shrimps with their shell, and thus with no other processing than the cooking that often takes place on the trawlers (Statistics Greenland, 2014 a). However, there has been a slight tendency for increased processing in recent years. The reason for the high export of largely unprocessed shrimp is partly world prices, which has periodically been highest for shrimps with their shell, but just as much, the processing is moved to low-wage countries, hoping to optimize profits. Thus, the publicly owned Royal Greenland has operated shrimp peeling factories in Thailand for decades.

In 2013, of the total exports for Greenland shrimp accounted for 47.5% while halibut accounted for the second largest single item with 26% (Statistics Greenland, 2014 b). For halibut, the employment effect is somewhat more nuanced, with about half caught by large trawlers on the banks off West Greenland, and the remainder being primarily caught by small boats and dinghies and in winter with long lines off the sea ice

in northern Greenland. For this part of the catch, an obvious link between residence and business basis is evident. On the other hand, there is again a very modest degree of processing for halibut, with on average, around 80% of the catch over the last 25 years exported as whole frozen fish. Again, the explanation is partly due to the world market and partly due to the fact that a large part is sent for processing in low-wage countries, including Royal Greenland's plants in Poland.

As seen in Figure 2, despite centralization and rationalization of fishing, as well as the relatively high export of unprocessed raw materials, the export value of fish and shellfish over time has not been maintained. Meanwhile, Royal Greenland has several times ended up with significant deficits that the government has had to cover in order to avoid the group going bankrupt, the latest in 2010, when the treasury had to contribute half a billion Danish kroner. Paradoxically, it has a couple of times been the non-Greenland parts of the group that has resulted deficits so large that it threatened Royal Greenland's existence so much so that the government had to intervene.

The centralization of fisheries and purchase and storage plants and the partial outsourcing of processing has left a number of towns and villages without or very limited industrial base attached to the location of the settlement.

5. The public centralization

In parallel, there has been a significant centralization of a number of public functions where most publicly or semi-publicly owned corporate offices and administrations gradually has been gathered in the capital Nuuk, and correspondingly, higher education has gradually been concentrated in a few cities. The most important change in this direction is probably that the 18 Greenlandic municipalities were merged into four large municipalities in 2009, and as a consequence the majority of the city administration and the associated jobs has

been gathered in the four municipal center cities. For a city with 1,000-2,000 inhabitants and a total municipal population of 2,000-3,000, municipal work is a large percentage of the employment opportunities for people of working age, and as jobs disappeared in the wake of the merge of municipalities, many sought to move with the jobs. Consequently, there has been a massive brain drain from the previous towns that were municipal centers. As a result of this depopulation, a number of services along with the building and construction sector are facing a crisis in the former municipal cities.

Another centralization trend has been that since 2011, the former 16 health districts have been compiled into five health regions. On the one hand, this has removed jobs at the former district hospitals and means that people have very far to the nearest staffed hospital. For a large part of the population, this involves several days of travel by public transport, unless an emergency evacuation is made, which is often hampered by weather. On the other hand, the argument for this centralization has been partly economical and partly to improve health service. In relation to the economy, there is no apparent benefit, as some of the most isolated districts where the majority of the population is spread over many small settlements were among the country's cheapest hospital districts, even when evacuations are recognized (Hendriksen, 2013). Time will tell whether significant increases in quality will take effect.

At the same time, there has been a number of societal and political changes that has increased the cost of living and poor service levels in the smaller towns and settlements. To name just a few, the 'uniform price system' in retail, introduced by Denmark, where a given product costs the same everywhere in the country, was abolished in 1994, and since then the public subsidy to the government-owned retail chain Pilersuisoq has been gradually phased out. The consequence has been a sharp increase in prices on a number of vital groceries. Another example is that the flat-rate for electricity and water was abolished in 2005, meaning that the publicly owned utility

Nukissiorfiit should use the 'true-cost prices' with a limited public subsidization. The consequence was that electricity prices in most places in the country today are 2.5 times higher than in the major cities where the public has brought hydropower plants. Additionally, water rates in most places is three times higher than the cheapest 'big cities'. Here again is a paradox, since the public subsidization does not unequivocally benefit the most expensive areas.

6. Urbanization factors

When the decoupling of localization and the use of the local resources, which over the years has been a fact for a number of cities, is coupled with the administrative and political centralization tendencies, a large number of towns in Greenland are left without a substantial basis for existence or business. For the towns that no longer have fishing or purchase and storage plants of importance and which no longer serve as municipal centers, the economic base is reduced to the most rudimentary operation of the city, such as school, kindergarten, elderly care, minimal municipal administration, renovation, retail, and some service industries. All these things are directly or indirectly funded by the government and ultimately the Danish subsidy of Greenland. Inevitably, a large visible and invisible unemployment arises, and when commuting to another settlement is not possible, for many there is little reason left to stay. At the same time, most cities are located so that the base for subsistence hunting and fishing is not particularly good, and in any case, the population too large for all the unemployed to live off the subsistence hunting that is locally available. People start to look elsewhere, and as always in this process, the resourceful are among those who move first, creating a downward spiral.

For part of the settlements, a corresponding dynamic arises. It becomes less meaningful to stay put when livelihoods are no longer coupled with utilizing the local opportunities and resources, often because there is no option to sell skins locally, and again there is a tendency of the enterprising and

resourceful inhabitants to move first. But for the settlements with a clear link between localization and utilization of local resources through hunting and / or fishing, the dynamic is often different, regardless of whether the base of existence and the economic base is formed from a subsistence economy where the catch is sold by informal channels over much of the country, or in the case of registered income, through the selling of fish to local purchase and storage plants. For these settlements, a stable or growing population is often the case while the internal dynamics remain good (Hendriksen, 2013).

In the debate over Greenlandic settlements there is a general misconception that people who live in what is defined as settlements result in higher costs for the government than is the case for the urban population. However, a systematic review of the direct and indirect public dwelling-related costs in fact shows that the public cost per inhabitants in settlements and cities are generally similar, but there are major differences between the settlements, as there are big differences between the cities. At the same time, the total public expenditure on the social group that includes unskilled, fishermen and hunters, as well as the population of working age outside the labor market, is significantly lower for the settlements than for the same population in the cities. This is because the population of this social group in cities often ends up on unemployment benefits, while in the villages they are more likely to be fully or partially self-supporting (Hendriksen, 2013).

It can be said that the above urbanization trends are comparable to those seen in Denmark and the other Nordic countries. But there are two crucial differences.

First, for the majority of the population (which includes unskilled, hunters and fishermen and the population of working age outside the labor market) in cities that have lost municipality status, and in the settlements, there is nowhere to move to. For a very large share of this population the question is not if they will move for work, but moving from a place that they perceive

as more or less futile. To a large extent, these are the same urbanization trends as in third world countries, that one moves in the hope of a better life. The fact that this process is not currently happening to a far greater degree in Greenland is due to a number of factors. To begin with, people are aware that there are no jobs to move to in the larger cities, and that it is difficult to find a place to live. Secondly, in Greenland there is a social security system that for most ensures a reasonable standard of living where they currently reside. In addition, many have for a time tried to stay in one of the larger cities, but it did not work for them, whether it was because they did not find work, they felt marginalized, or they did not function socially. And so, they returned to a smaller community with a different way of life, to family and friends, and where it is also to some extent possible to supplement livelihoods through subsistence hunting and fishing.

Secondly, there is the significant difference from Denmark and the Nordic countries that urbanization in Greenland is much more a consequence of administrative and political decisions than the consequence of the development of commercial and economic

structures. As shown, Greenland's export income declined, as did the number of jobs in export income generating industries, and consequently Greenland's dependence on the Danish subsidization has not diminished. That the value of the Danish subsidization primarily has ended up in Nuuk and to a lesser extent in a few other 'big' cities, is a choice and it is not clearly justified by 'where the best value for money is', or 'where the most value is created', as the public costs per. inhabitants in these cities do not differ considerably from other settlements. Similarly, the location of the Greenland shrimp fishery, which comprises almost 50% of total export value, is based more on administrative and political opinion on where revenue and jobs need to be anchored, than on the location of the resource base.

In a city like Nuuk, the main industry is based on the administration of the country, and that is what makes the city the country's richest, which is not abnormal for a capital city. As shown in Figure 4, Home Rule wages (now the Self-Rule) almost solely funded the combined local income tax when Nuuk was still an independent municipality.

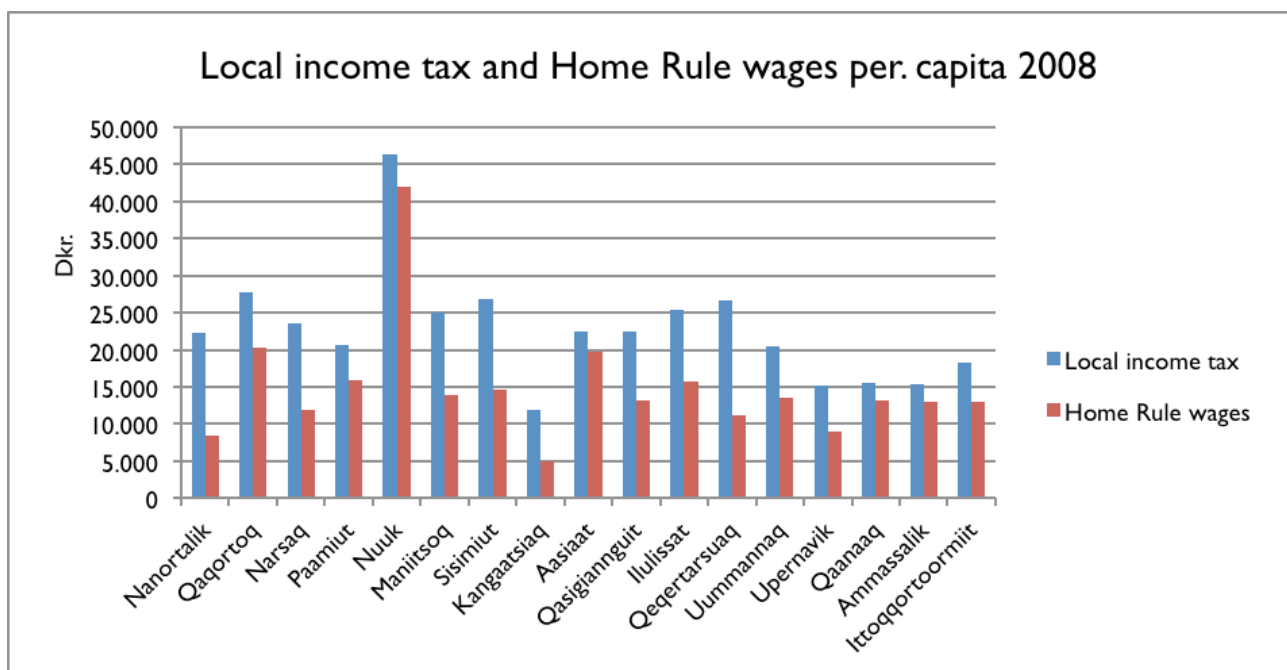


Figure 4: Comparison between the individual municipalities' tax revenue and the Home Rule wages per. inhabitant of the old municipalities (2008) (Hendriksen 2013) (Based on Statistics Greenland)

7. Discussion

As shown, Greenland's economy is by no means sustainable, and although there is an emphasis on mining, there is nothing to suggest that the economy will change significantly within the coming decades. (The Committee for Socio beneficial exploitation of Greenland's natural resources, 2014).

In the debate in Greenland's development, as is the case elsewhere, there is a tendency to perceive urbanization and thus the centralization of the population in fewer but larger settlements as a 'natural development.' However, a clear correlation is evident between, for example the population of settlements and a number of political and administrative decisions - or lack thereof. As shown in Figure 5, settlement population was stable during the first years of the Home Rule from 1979, when investments were made in sectors such as purchase and storage plants. Around 1990, the cod disappeared, and initially, purchasing was shut down in the settlements. In 1994, uniform pricing in the retail area was repealed and subsidization of Pilersuisoq was gradually phased out, and the population began to decline. In 2005, the uniform pricing of electricity and water

was abolished, and electricity and water prices generally rose significantly in the smaller towns and villages, and migration rates increased. Finally, in 2008, the Home Rule introduced a mobility enhancing payment for settlement residents who wanted to move to a bigger city continuing the downward trend (Home Rule, 2008). A quite similar graph can be displayed for the 13 out of 17 current cities that have lost their status as municipal centers.

If it was because the people from settlements and small towns moved to jobs and a better life the need to discuss the urbanization trend and why it occurs would be modest and would mostly assume an academic nature, but it is far from clear that people move to a better life and work. At this stage, the major cities can neither accumulate or secure meaningful employment for the people of the towns and settlements that have lost their existesial and economic basis. The Greenlandic paradox is that the micro-state's modest population today is too big for the income base that the huge country can generate, and the question is whether this changes through urbanization and thus centralization of the population on fewer but larger settlements?

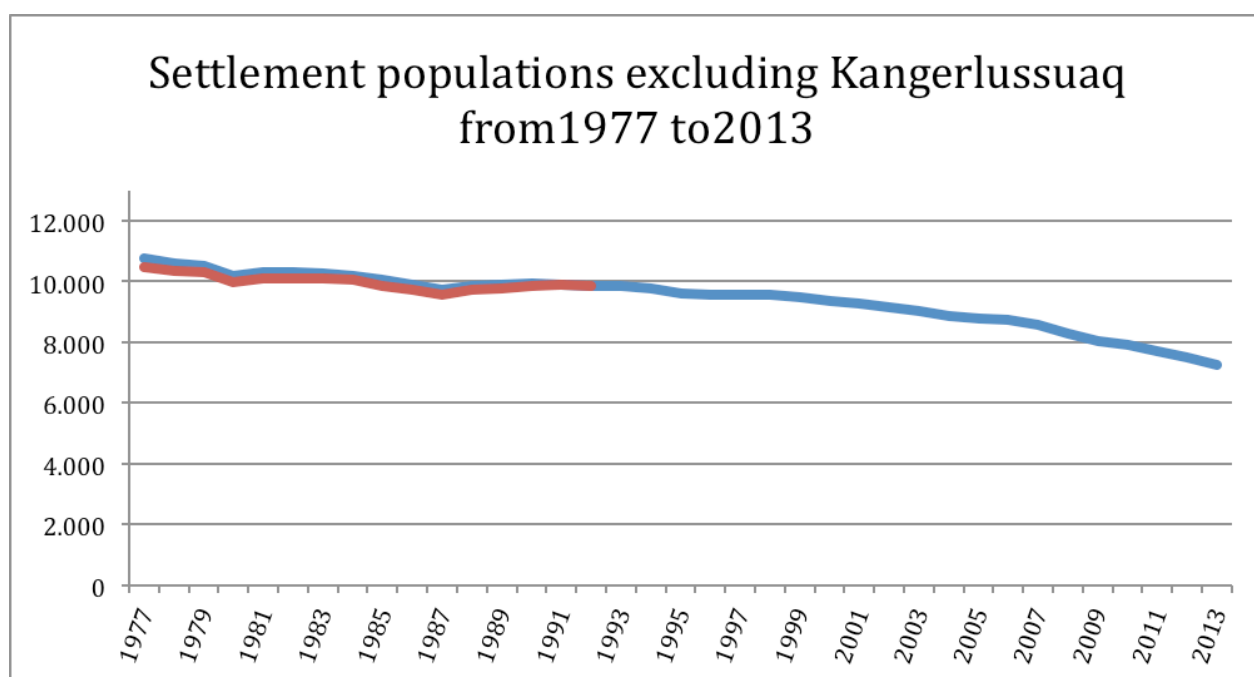


Figure 5: Evolution of settlement population 1977-2013 excluding Kangerlussuaq airport, which has received town status. The red line is the total population without lead and zinc mine Maarmorilik, which closed in 1990.

In an urbanization perspective one of the paradoxes and thus one of the challenges that exist is that today there is neither any clear or economically rational argument for the ongoing urbanization trend of gradual centralization of the population in a few major cities. Due to the development of the resource base - mainly living marine resources - but just as much because of the decisions of localization of purchase and storage plants, a number of towns and settlements have lost their original existential and commercial basis. Meanwhile, a number of cities have lost the industrial base that was attached to being an administrative center of a municipality, and thus their *raison d'être*. Some of these towns and villages have potentials that are currently unused, but exploiting them will require conscious political and administrative decisions. This raises the question of whether local resources are to be exploited by the local population or whether they should be seen as a national resource?

Halibut in Upernavik district is another example of this, as the district contributes around one-sixth of the total export income from halibut, making the population among the most income generating. Upernavik district is Greenland's most decentralized with just over 60% of its 2,800 inhabitants in nine smaller settlements, while the last 40% live in Upernavik city. The primary livelihood of the settlements is hunting for marine mammals, while their primary industry basis or registrable livelihoods are fishing for halibut and to a lesser extent the

processing at the purchase and processing plants. The vast majority of the approximately 400 fishermen/hunters only sell quite modest amounts of halibut because their primary employment and identity is linked to the catch, but as an economic supplement to the family's household, they are completely dependent on being able to sell halibut when bills arrive or a need for investment arises. The combination of hunting and fishing for halibut has in recent decades made Upernavik the best performing remote district with a steadily increasing population in the settlements, and the district's population has largely had the halibut for themselves. However, to accommodate fishermen with bigger boats from the cities, half of the district's quota from 2012 was awarded to cutters coming from up to 800 miles south of Upernavik, and at the same time, restrictions were put on the fishermen with dinghies in the Upernavik district. This is an administrative decision that has pulled the economic foundation out from under the local population, and for a number of periods they have become dependent on welfare, and this inevitably raises the question of "why stay so far north"?

8. Model for settlements' development dynamics

In connection with an analysis of the Greenlandic settlements' development dynamics the following model, which also can be used advantageously in the cities, has been developed.

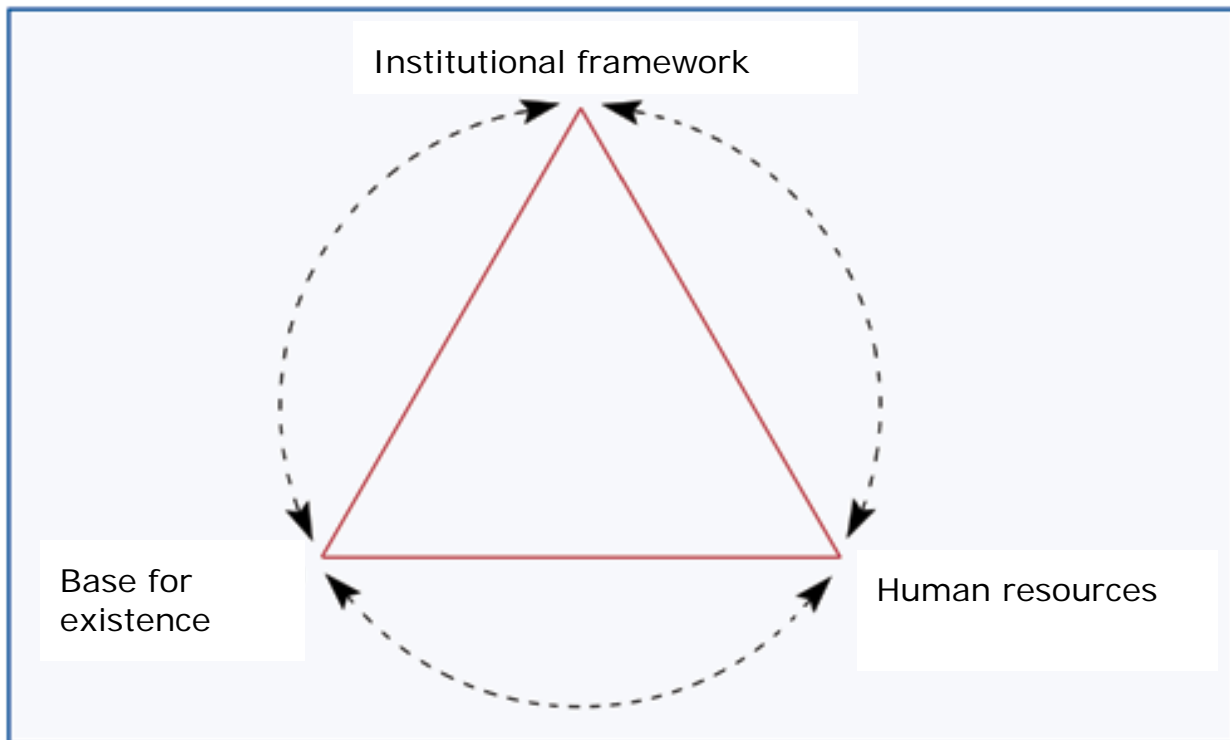


Figure 6: (Hendriksen 2013)

The baseline represents the background for setting up a settlement. There are - or has been - some natural resources at the site, and as is usually the case in Greenland these are living marine resources, and there have been some human resources that managed to benefit from this livelihood and therefore have settled on the site. If the resource disappeared, an attempt was made either to exploit other resources, they moved, or they starved to death. Since then, through first the Danish colonization and in particular through modernization a number of institutional framework have been built, such as a purchase and processing plant, school, health care, and social care, which act as support for the settlement. But the institutional framework will also guide the settlement's development dynamics. If better purchasing plants with more processors are established, and there is the necessary natural resource base, the settlement grows because there are better business and revenue opportunities. Similarly, if the institutional conditions are affected by the closing of plants or the awarding of purchasing allowances to

others, the prices of basic goods will rise excessively, and the service level of health, education, etc. deteriorates, and this then creates a negative development dynamic that often leads to gradual depopulation.

The institutional framework is increasingly crucial for the individual settlement's development dynamics, and thus we see that the bigger cities of Greenland are growing, even though their livelihoods does not justify this, but because they in different ways are allocated a larger share of the subsidy from Denmark and/or the export earnings from fish and shellfish. Similarly, there are both towns and settlements that end up in a negative development dynamic because their institutional conditions deteriorate, even though they locally have a reasonably good resource base. As catcher Themotheus from Kullorsuaq in northern Upernavik said when we talked about the serious consequences of climate change for the local population, because the period of winter sea ice has been reduced significantly, so that the inhabitants are forced to hunt and fish in open boats in the

dark period in waters filled with brash ice, ice floes and icebergs: "Climate change - it's something we have to adapt to - the threat to our way of life comes from Nuuk."

9. Conclusions

There is an apparent difference in the consequences of the factors that facilitate or drive urbanization in on the one side Denmark and the other Nordic countries and on the other side Greenland. Where changes in business and economic structures that are highly dependent on globalization and market dynamics play an important role in the Nordic countries, the institutional framework seems far more essential as a driving force for Greenlandic urbanization. If it was the actual and potential opportunities for a sustainable basis for exploiting local resources that guided the evolution of the Greenland commercial structures, urbanization then human settlement development would likely have a different character.

Hereby, urbanization is more a consequence of political and administrative decisions and priorities - or a lack thereof. Here it is worthwhile to look at the extent to which the current trend is a consequence of the fact that the Greenlandic decision making is based on tools and models derived from a different frame of reference and context, and not sufficiently adapted to the Greenlandic micro-state and island operation characteristics. Overall, research should be carried out in order to shine a light on the whole complex of problems surrounding Greenlandic urbanization and the development of commercial and settlement patterns.

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